

Where's All That Smoke Coming From?

AEROMEDICAL

Photo by Matthew Thomas. Modified.



By Cdr. Mike Michel

My crew was hot-seating into an SH-60F for what was supposed to be a simple ASW flight. I sat in the left seat and got a good turnover from the previous flight's helicopter aircraft commander (HAC). He said the aircraft was systems up for ASW and gave us a good datum—about 60 miles away—for the sub we were playing with. He also said a P-3 was on-station and maintaining contact. As the HAC exited the aircraft, he also said isolated thunder-

storms were between us and the datum. I looked in that direction and saw a wall of black clouds. I looked to the right seat and saw my excited copilot strap in.

My copilot was a fellow O-5 and the XO of the HSL East Coast weapons school. We knew each other from our PCO-PXO training track, and he was on board USS *Enterprise* (CVN-65) to observe our ASW exercise. I had told him the best way to do that was to fly in it.

Before our hot-seat into the aircraft, we had done an

in-depth NATOPS brief, covered ORM, and specifically addressed the differences between an SH-60F and the SH-60B. We also received an excellent ASW brief from the CVN ASW module. My copilot was an experienced SH-60B pilot, NATOPS-qualified, and just had finished the SWTI course but had not flown much the past six months. Although he was inexperienced in an SH-60F, I felt comfortable flying with him. Plus, the mission was straightforward: We were going to a datum where the sub would be on the surface.

My aircrew in the back was very experienced, and we planned to dip actively on the contact. All my copilot had to do was fly; I would do all the navigation, communications and tactics. My crew in the back would handle prosecuting the contact with our sonar and buoys. As we took off from the carrier, I thought this flight would be easy—once we got through the thunderstorms.

We had good flight-following from one of the small boys in the vicinity for the 60-mile transit. We quickly reached our first rain squall, and because my copilot was a very good instrument pilot, we had no problems

sonobuoys. I had the crew bring up the dome and told the P-3 we were breaking dip. As the dome cleared the water, my copilot departed the hover. During our transition to forward flight, white smoke billowed into the cockpit from underneath the instrument panel. As the aircraft accelerated, the amount of smoke increased.

My first thought was, “This can’t be happening.”

Then training kicked in. I immediately made a Mayday call, passed we had smoke and fumes in the cockpit, and requested a steer to the nearest deck. My copilot leveled off at 150 feet, and I did the boldfaced items for smoke and fumes in the cockpit. I turned off the ECS, then the battery, and got to the third step: Secure all unnecessary electrical equipment. At this point, I stalled. I had no idea what equipment would be unnecessary for the trip back through the rain squalls. All I could think was, “Where was this smoke coming from?”

The smoke kept pouring into the cockpit on both sides. It was difficult to breathe, so I tried to adjust the window scupper, but this effort did not help. My copilot and I looked at each other in disbelief and in

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penetrating it. I turned on the pitot heat and saw the left pitot-heat-fail light; the previous crew had passed on this gripe. I felt comfortable continuing because the right pitot heat was working. I reached across the cockpit and tried to turn on the windshield wipers, but they didn’t work, even though I tried all the different positions on the switch. I placed the switch back to what I thought was the off position and told my copilot the windshield wipers didn’t work. A few moments later, I smelled something strange and asked the crew if anybody else smelled it—nobody else did. The smell went away, and we quickly flew out of the rain squall and were VMC to the datum.

I contacted the orbiting P-3 and got a good turnover. We soon made visual contact on the sub and immediately got into a dip to prosecute with our active sonar. My crew in the back worked an attack solution, and up front, my co-pilot and I went over some of the differences between doing ASW in a Foxtrot versus a Bravo.

We got off a simulated attack, and then one of my crewmen said over ICS they smelled something. I immediately thought we had a problem with one of the

unison asked, “Where is all this smoke coming from?” Meanwhile, my aircrewman came forward and manually released all the sonobuoys, thinking they might be the source of the smoke.

The P-3 said a small-boy was 30 miles away and then gave us a steer and a TACAN channel. As my copilot made a turn toward the ship, I thought things couldn’t get any worse, but they did. A black wall of thunderstorms was between us and the small-boy. My copilot climbed to 300 feet, and I continued to work my way through the pocket checklist. I became fixated on the left side, pitot-heat-fail caution light. I thought the pitot-heat tube was behind the instrument panel, where the smoke was coming from, and had to be the cause of the smoke. I turned off the pitot heat as we approached the thunderstorm. All I wanted was the smoke and fumes to stop. The smoke made it difficult to breathe, and the fumes made us lightheaded.

Unfortunately, the smoke continued. My copilot tried his best to concentrate on the instruments while he fought to breathe, and I was running out of ideas to stop the smoke and fumes. Pulling circuit breakers was

not an option, because I had no idea which breakers to pull. I backed up my copilot on the instruments as we flew in some awful IMC weather.

My copilot and I briefly talked about our options. We did not want to jettison the windows; that would aggravate a fire behind the instrument panel. We agreed if the smoke and fumes did not stop, we might have to ditch before we became incapacitated. After this brief discussion, I, out of desperation, reached up to secure one of the generators.

During our crew brief we had discussed which items in the cockpit required dual concurrence before securing; generators were one of those items. However, at that moment, all I told my copilot was I was turning off the No. 1 generator. I turned it off, but nothing happened. My copilot kept his eyes fixated on the instruments. I wasn't thinking clearly and did not realize when I secured one generator the other would pick up most of the remaining load dropped by the secured generator. I just wanted the smoke to stop pouring into the cockpit. I reached across the cockpit and said I was turning back on the No. 1 generator and turning off the No. 2.

Without waiting for my copilot's concurrence, I switched back on what I thought was the No. 1 generator. The cockpit immediately got dark and quiet. Something deep inside me said I just had secured the No. 2 generator. I also heard a loud "pop" behind my head. The aircraft pitched forward in the rainstorm, and before my copilot could say a litany of profanities, I turned back on both generators. I quickly turned on the AFCS and checked the stabilator position.

We leveled off at 200 feet, still IMC. I turned my head to see what had made the popping noise, and saw the windshield-wiper circuit breaker had popped. At the same time, I noticed smoke had stopped coming into the cockpit. Almost simultaneously, we cleared the thunderstorm and could see a small-boy on the horizon. We made an uneventful landing, shut down,

and exited the aircraft. The HSL maintainers on the small-boy said we smelled like a burnt electrical wire. It was nauseating.

The maintainers found a burned-up windshield-wiper motor. I never knew such a small motor could make so much smoke. Apparently, corrosion had frozen the wipers. When we went through that first rainstorm, I had tried to turn on the wipers, but they did not work. I thought I had turned off the wipers, but I really had left the switch in the on position. The switch is above the head of the right-seat pilot, and it's hard to see the switch positions from the left seat. I evidently had left the motor fighting against a frozen wiper-blade controller.

We learned plenty of lessons from this experience. First, I had been given smoke-and-fumes on almost every NATOPs check and always had thought that emergency was silly. I never could imagine anything in the cockpit catching on fire. I had spent very little time thinking about this emergency, much less what circuit breakers to pull.

Second, when you are having a tough time breathing, in the middle of an emergency, thinking clearly becomes challenging. The left side, pitot-heat-fail light threw me off. I was confident once I turned off the pitot heat, the smoke would stop. When it didn't, I was lost for ideas about how to stop the smoke. I have no idea what finally made me decide to turn off the generators one at a time. Maybe it was desperation. In hindsight, it was not a good idea, and I violated the dual concurrence portion of my brief and our squadron SOP. However, I am convinced the interruption of electrical power caused that circuit breaker to pop. Had the smoke not stopped, I am certain our next step would have been to jettison the windows, and if that action had not provided some relief from the smoke-and-fumes, I am sure we may have ditched. Fortunately, we never reached this part of the decision tree. 🦅

Cdr. Michel is the commanding officer of HS-11.

Mishap-Free
Milestones

VP-47	200,000 hours	34 years
HSC-28	53,049 hours	9 years 3 months